

**(19) World Intellectual Property
Organization
International Bureau**



(43) International Publication Date
7 October 2004 (07.10.2004)

PCT

(10) International Publication Number
WO 2004/086662 A1

- (51) **International Patent Classification⁷:** **H04J 11/00**

(21) **International Application Number:**
PCT/NZ2004/000060

(22) **International Filing Date:** 25 March 2004 (25.03.2004)

(25) **Filing Language:** English

(26) **Publication Language:** English

(30) **Priority Data:**
524929 25 March 2003 (25.03.2003) NZ

(71) **Applicant (for all designated States except US):** **INDUSTRIAL RESEARCH LIMITED [NZ/NZ];** Brooke House, 24 Balfour Road, Parnell, Auckland 1007 (NZ).

(72) **Inventor; and**

(75) **Inventor/Applicant (for US only):** **COULSON, Alan, James [NZ/NZ];** 31 Collingwood Street, Waterloo, Lower Hutt (NZ).

(74) **Agent:** **THOMSON, Keith, C.;** A J Park, 6th Floor, Huddart Parker Building, Post Office Square, PO Box 949, 6015 Wellington (NZ).

(81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report

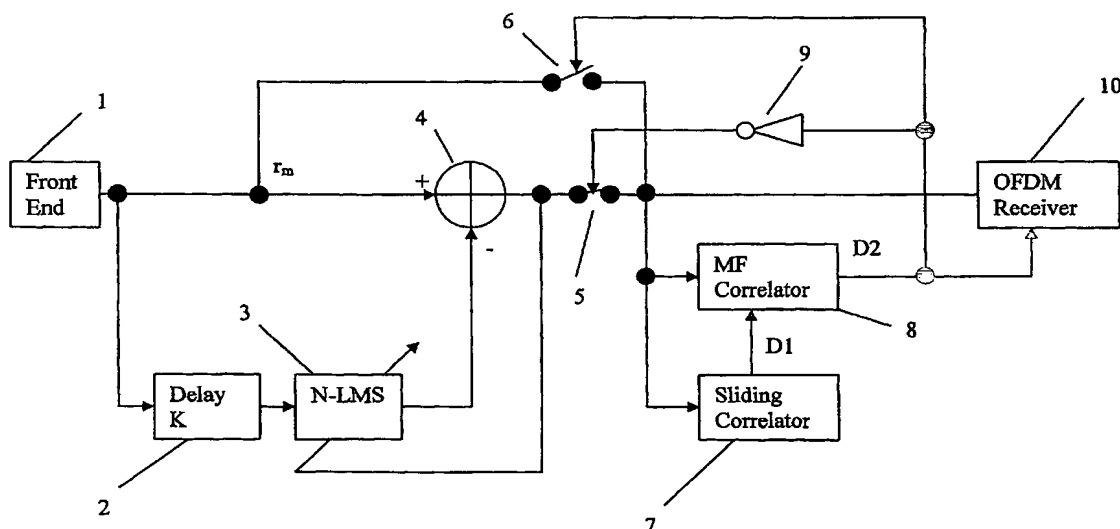
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

- (54) Title:** METHOD AND APPARATUS FOR IMPROVING THE PERFORMANCE OF PILOT SYMBOL ASSISTED RECEIVERS IN THE PRESENCE OF NARROWBAND INTERFERENCE



(57) Abstract: A method for reducing interference from at least one narrowband interferer in a pilot symbol assisted receiver (10) includes the steps of; receiving a stream of received data, passing the stream of received data through an adaptive filter that reduces interference from any narrowband interferer, passing the filtered data through a correlator (7, 8) arranged to detect pilot symbols, when a pilot symbol is detected passing the stream of received data to a receiving apparatus without first passing the received data through the adaptive filter (3), and wherein the pilot symbol includes one or more repetitions of known data or pseudo noise.

WO 2004/086662 A1